

# Evaluation of Medigame as an Educational Tool

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**M**EDIGAME is a board game designed as a supplement to numerous publications, films, and other information aids that have been used for several years to explain the benefits of the Medicare program to the nation's elderly citizens and to their families. The game was developed over the past 2 years (1) by the Community Health Service, a unit of the Health Services and Mental Health Administration, Public Health Service. This report presents an analysis of 270 informal studies and two special studies to test and evaluate the effectiveness of Medigame.

Although games have been used effectively as teaching tools in management, military training, secondary education, and other disciplines, the use of a game to teach health care benefits to an older population was a new concept. Since predicting the effectiveness of the new game as a

teaching device was difficult, if not impossible, it seemed useful to test and evaluate Medigame from two standpoints before deciding if the game's widespread distribution was warranted. We felt that Medigame should be evaluated for (a) effectiveness as an educational supplement and (b) acceptability as a program tool.

## Medigame as an Educational Device

Medigame is played by two to six people using a board imprinted with a path upon which are scattered a number of stops requiring players to draw cards from piles labeled, "hospital bill," "doctor bill," or "chance." At the beginning of play, each player is given \$400 in play money and issued a Medicare identification card. Each player selects a distinctive marker, and before play begins, decides whether to purchase supplementary health insurance. The objective in this game is to anticipate probabilities as a Medicare beneficiary with more skill and luck than the other players.

Progress around the board is determined by a throw of the dice. During each turn, a player is required to draw a "play" card, read it aloud, and make a decision regarding the information it contains. This usually involves the use of the play money for health benefits or health-related purposes.

The use of play cards and stops on the board permits players to simulate the benefits of Medicare, thereby learning about medical services,

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hospitalization, extended care facilities, and home health services. Players also learn what services are not covered by Medicare, and what services are only partially covered. Each set of the game included a reference copy of "Your Medicare Handbook." The Social Security Administration gives a copy of the handbook to each beneficiary.

Winner of the game is the person who accumulates the most points. Points are earned by (a) finishing the circuit of the path, (b) totaling the value of play money held at the end of the game, and (c) purchasing, during the game, cards which represent health insurance, good diet, physical examinations, and social and physical activity.

One circumstance that fostered serious consideration of an educational tool that simulated using Medicare benefits was that an earlier study (2) indicated that persons who had actually used Medicare benefits one or more times were more knowledgeable about benefits available under the Federal health insurance program than were nonusers. Acquisition of such knowledge seemed to be due to several factors, among which were (a) necessity had required that users of Medicare learn about various aspects of the program, (b) necessity had provided a strong motivation for learning, and (c) the self-evident fact that experience is, if not always the "best teacher," at least a good one.

While motivation is a prime requisite for learning, a well-designed, educational game should combine motivation with a number of other elements that promote and enhance learning. Thus, Medigame requires players to learn about Medicare benefits in order to play the game. Also, Medigame presents players with the need to make decisions based on consideration of the alternatives available in health care. The need to acquire information in order to make sound decisions is thrust upon them.

More significantly, perhaps, Medigame provides players the opportunity to reflect on their own and other's decisions made during play and to build up a backlog of hindsight that may serve the players well when they need to use Medicare. As the analysis of these studies will make evident, the prospect of playing the game provided a strong motivation prior to play for

players to discuss Medicare and to compare their own experiences or those of their friends and acquaintances with health care problems.

### **Evaluation of Medigame**

Although Kamenske's preliminary evaluation of Medigame in its developmental stage showed it to be a valuable educational tool, more extensive tests in a wider variety of settings were desired. These tests would further measure the game's educational value, indicate how this tool might best be used, and permit an evaluation of the game's final physical design.

A total of 750 games were manufactured, and they were distributed by the Social Security Administration, the Administration on Aging, and the Public Health Service. The games were sent to selected Social Security offices, Administration on Aging centers, and other organizations selected by the Public Health Service. The Service's selectees included four county health departments, two schools of public health, one hospital, and one retirement home and hospital. Organizations selected for testing were asked to provide information on age, background, and other relevant data about groups playing the game, problems encountered in play, indications of the game's evocation of meaningful discussion and exchange, evidence of whether learning took place, the game's effectiveness as a teaching tool, and any problems encountered in its design.

Organizations were asked to use the game as they wished. In some instances, the game was left among other social games, and its use depended upon choice of the people. However, participating organizations usually used the games as an educational experience, planning for play of the game and recruiting players.

In all situations an observer supervised the play of the game and was asked to complete a questionnaire each time the game was played. Observers were asked to report examples of the kind of discussion, interplay, exchange of information, questions asked—all of the verbal cues that might indicate whether Medigame was fulfilling its purpose of imparting information.

The analysis in this evaluation is based on reports received from the observers. Since all

observers were not uniformly trained and did not record exactly alike, their reports have been interpreted very generally.

This report covers observations of 270 groups in various settings and represents play of Medigame by 1,874 persons, 73 percent female (table 1). Groups sometimes included several tables at play; at other times, a single table. The median ages of 50 percent of the players were in the 61-71 years range, with the next largest group (29 percent) in the 60 years and under bracket (table 2).

### General Observations

One purpose of the test was to judge the subjective reaction of observers to usefulness of gaming as an educational tool. Of 155 observers reporting on usefulness of the game, 130 (83.9 percent) reported it useful. Of the 25 (16.1 percent) reporting the game not useful, many indi-

cated in another section of the questionnaire that the game did provoke meaningful discussions and questions about Medicare. In 83 percent of the play reported, the observers pointed out that players could answer questions about Medicare as the game progressed and demonstrated considerable learning by the end of the game.

Although the total number of persons in groups in which observers reported the game not useful is relatively small, it is possible to draw some tentative conclusions. There appeared to be a tendency for professionals, persons under 50 years of age in social groups, and those over 75 to find the game less useful. Further studies to evaluate this apparent tendency will be required. Test results indicated that Medigame is a useful program tool for teaching people about Medicare as evidenced by its effectiveness in provoking discussion and an exchange of meaningful information (reported by 89.5 percent of observers).

**Table 1. Types and numbers of groups who played Medigame**

Type of group	Number of groups	Persons	
		Number	Percent
Organized senior citizens..	111	824	44
Social groups (over 50 years) .....	44	312	17
Foster grandparents.....	30	292	16
Institutional residents....	24	173	9
Professional staff.....	26	128	7
Social groups (under 50 years) .....	12	49	3
Family.....	5	16	( <sup>1</sup> )
Other, not indicated.....	18	80	4
Total.....	270	<sup>2</sup> 1, 874	100

<sup>1</sup> Less than 1 percent.

<sup>2</sup> Of this total, 73 percent (1,362) were women and 27 percent (512) were men.

**Table 2. Median age of persons who played Medigame**

Age (years)	Number	Percent
60 and under.....	535	29
61-70.....	942	50
71 and over.....	353	19
Not reported.....	44	2
Total.....	1, 874	100

### Characteristics of the Players

Lack of education, socioeconomic status, or ethnic origin did not seem to affect adversely people's ability to play the game. Among the 35 groups (13 percent of the total) for whom the educational level was reported, 16 groups (40 percent) included persons who did not go beyond the eighth grade, and 13 groups (37 percent) had some members with at least a college education. Of 87 groups (32 percent of the total) for whom ethnic background was reported, 17 groups (20 percent) had persons from various ethnic groups and, in some instances, had persons with limited use of the English language. Of 132 groups (49 percent of the total) for whom economic status was reported, 48 groups (36 percent) were identified as underprivileged, low-income, farm, or mixed-income groups.

One mixed-income group reported, "We have people from all walks of life in the foster grandparent program—some are well-educated—some moderately so—some illiterate. We have teachers, cabinetmakers, electronic workers, farmers, custodial workers, and day-by-day earners. When they come together in a common effort, they help each other. In Medigame, a reader reads for the nonreader and so it goes

as the group progresses—all who have played have voiced opinion of its worth. It has helped each and every one to learn.”

### **Specific Observations**

While the number of times the game is played obviously would affect the amount of learning, most observers reported an apparent increase in knowledge after only one game. Medigame did stimulate an exchange of information and the development of group knowledge about Medicare even before the game began. This stimulation was evidenced by discussion about aspects of Medicare coverage, experiences of players or of their acquaintances who had used benefits, the merits of private insurance, and practices related to billing.

Playing the game evokes questions about services under Medicare. These questions pertain to hospital benefits, medical service benefits, services provided by extended care facilities, and home health care. Observers reported increased knowledge during repeated participation in the game as evidenced by increased ability of players to answer questions.

Participants’ information-seeking activities after the game also were reported. Observers asked questions at the conclusion of the game, and players consulted their Medicare handbooks or other sources of information. Medigame obviously prompted players to seek additional information, indicating its success in motivation.

A unique response in one instance was a letter from the participating group, submitted with the observer’s report. It furnishes a commentary on the inventiveness of one supervisor. It read “We, the blind, want to thank you for letting us learn about Medicare with the game. We learned a lot and had such fun doing it. Some ladies brailled all the cards, we fixed the dice with Elmer’s glue and put dots on the markers. The sighted teachers read cards when some couldn’t read braille. The students with limited vision read to the blind also. We thank you again.”

One observer stated, “It is a good teaching tool and had great relevance to the experience of the players, drawing a doctor bill or hospital bill prompted many of the players to share personal medical experience.” Some of the cards which were built into the dynamics of the game,

while providing variety from the technical Medicare information, do offer health advice and sustain play interest by presenting experiences with which the players could identify.

“One rather obese player drew a play card which in part read, ‘You have been cautioned to watch your weight and count your calories.’ She blushed and reported, ‘Boy this one I need.’ Upon receiving a hospital card which stated, ‘You have just visited your new granddaughter.’ Another player commented, ‘I haven’t had a new grandchild to visit in the hospital in 15 years,’ to which another remarked, ‘I have one due in a month.’”

Not all evaluations were glowing. Some observers reported difficulties with mechanics of the game and with following instructions on the cards. However, most observers indicated that while help was needed at the beginning of the game in explaining the rules, the need tapered off as the game got underway.

Various groups made suggestions regarding the design and play of the game, and these suggestions will be taken into consideration in revising the game. Suggestions included changing the color of the play money to indicate denominations, use of a hard board instead of the rollup type, and use of larger print and larger dice. Another interesting suggestion that indicates the thought-provoking aspects of the game was that the insurance policies offered to players should provide more extensive coverage.

While some players insisted that “Medigame will never take the place of bingo or bridge,” most observers (78.9 percent) reported that players thought it “a fun way to learn.” Some observers reported the game to be confusing, too long, or even depressing. Since these negative reports came largely from hospitals and nursing homes, effective use of the game with persons who are ill appears questionable.

The observers generally agreed that programmers using the game need to know how to play it, be aware of what the game is designed to do, and be able to interpret its rules. A number of observers used volunteer members of the groups to assist in plays when large numbers of people were playing at many tables. In developing the game by having it played among groups of senior citizens, only limited instructions were given at the outset. These instruc-

tions were (a) purpose of the game, (b) what each play consisted of, and (c) how to win the game. Results with elderly groups indicate that a few simple instructions at the beginning of the game are better than elaborate, confusing instructions.

Two other different types of studies were carried out in connection with this test of Medigame, and the findings were similar to those in this study. One study was conducted at the Center for Community Research in New York City by the center's director, Dr. Douglas Holmes. The other, at the Foster Grandparents Project, Denton State School, was conducted by Frank E. Lucky, a psychologist. Holmes found the educational results of the game with his group to be disappointing. Lucky found Medigame an effective Medicare educational tool. Each man designed and used his own test, in contrast to the other observers who used a questionnaire and instructions provided by Government officials.

Holmes played Medigame with approximately 60 persons (mostly women) aged 68 to 76, with 23 completing a questionnaire designed for specific evaluation on an immediate pre-game basis. All participants were members of a Jewish community center and were drawn from the lower socioeconomic level. Most were born in the Middle East and, to varying degrees lacked fluency in English.

The same 23 persons were tested again, immediately after the game. The game itself lasted more than 2 hours, and when accompanied by the evaluation, the total experience took as long as 4 hours.

Referring to actual play of the game, Holmes reported, "The span of such serious concentration appeared to be completely beyond the ability of the group tested." No statistically significant increase in learning as a result of game play was noted. The data further suggested that playing Medigame only once had no demonstrable educational effect upon participants.

Holmes also reported, "There did seem to be some positive value in the game. As it was being played, the brighter players showed some surprise and interest upon finding out about some of the benefits to which they were entitled." Holmes reported that although results with his group were disappointing, in his opinion the

game has great promise which warrants a more comprehensive research effort to develop.

In the other study, 2 days before the game was to be played, Lucky administered a test questionnaire on "Your Medicare Handbook." Players "were predominantly average, elderly women from low socioeconomic backgrounds who had a mean educational level of eighth grade." The questionnaire was readministered 2 days following completion of 5 consecutive days of play. The results indicated that playing Medigame five times assisted women with previously low Medicare information scores to increase their knowledge. Women who were more knowledgeable before playing the game did not seem to profit from the experience. Lucky reported players enjoyed the game "in that they laughed, joked, and engaged in earnest discussion. Many of the players asked also if they could play the game again and others wanted to know if the game could be purchased for home use."

Lucky also reported: "The supervisors further report that Medicare-related topics were increasingly discussed after the mechanics of playing were mastered by the majority of the players near the end of the first game. In addition, a greater use of the Medicare handbook was reported between games. Typical comments were, 'I need to listen, read, and play more,' and 'I have a handbook at home and now I am going to read it.' The total content of the game appeared relevant to the personal experience of the players. It was observed that in using such cards as 'doctor bill' or 'hospital bill,' the players often exchanged personal medical experiences. Comments by players also suggested that the game's concentration on basic Medicare information had practical implications for the use of Medicare benefits in the future."

Not enough information is available at this time to draw precise conclusions as to why the studies by Holmes and Lucky differed in their outcomes. The disparity may have been caused by the difference between the group's composition or dissimilar test procedures. Uniform studies in the future may provide data for more conclusive evaluation.

During this survey there were two unplanned developments: one internal and one external. The internal development was the use of the

game to train staff in agencies and institutions involved with Medicare. The external development was the considerable interest of many communications media, especially newspapers, news weeklies, and the medical press.

### Summary and Conclusions

The effectiveness of Medigame, an educational device designed to help players learn about Medicare by gaming, was tested with the participation of 1,874 persons in 270 groups. Players included senior citizens, institutionalized persons, foster grandparents, social clubs, and health professionals, and they were representative of various socioeconomic, cultural, and ethnic groups.

Seventy-three percent of the players were women. The median ages of 50 percent of the players were in the 61-70 years range, with the next largest group (29 percent) in the 60 years and under bracket.

Among the 35 groups (13 percent of the total) for whom the educational level was reported, 16 groups (40 percent) included persons with no more than 8 years of formal education, and 13 groups (37 percent) had some members with at least a college education. Of 87 groups (32 percent of the total) for whom ethnic background was reported, 17 groups (20 percent) had persons from various ethnic groups and, in some instances, had persons with limited use of the English language. Of 132 groups (49 percent of the total) for whom economic status was reported, 48 groups (36 percent) were identified as underprivileged, low-income, farm, or mixed-income groups.

Observers noted the players' responses to the mock situations evolved during the game and compared the players' knowledge of Medicare

before and after the game. Of the 155 observers reporting on the usefulness of the game, 130 (83.9 percent) said it was useful. Professionals, persons under 50 years old in social groups, and those over 75 found the game less useful.

Of the 25 observers (16.1 percent) who reported the game not useful, many indicated that the game did provoke meaningful discussions and questions about Medicare. In 83 percent of the play reported, the observers pointed out that players could answer questions about Medicare as the game progressed and demonstrated considerable learning after the game.

Medigame was found to serve a number of purposes as an educational tool for informing beneficiaries of services covered and those not covered by Medicare, and in pre-retirement counseling, staff inservice education, and orientation of new personnel.

Because of its nature, this investigation did not produce uniform information for interpretation. Therefore additional investigation on the utility of Medigame would be useful.

A revision of Medigame using suggestions and ideas generated by the test will be undertaken by the Public Health Service. Interested groups will be able to obtain the game on request.

### REFERENCES

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### Tearsheet Requests

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